CLAIMS

I claim:

1. A method of producing a sequence (an "approximation sequence") approximating a series of sample values, the method comprising the steps of:

(a) determining a first set having candidate partial sequences as members, each member comprising a plurality of elements;

(b) selecting the first n elements of one of the members of the first set as the next n output elements for said approximation sequence, n being a positive integer,;

(c) forming a second set having descendent candidate partial sequences as members from said first set;

(d) applying a fitness filtering process to said second set to rank its members according to fitness for representing at least a corresponding portion of the series of input samples;

(e) selecting at least some of the members of the second set to form a third set; and

repeating steps (a) to (e) so as to produce said approximation sequence, wherein the third set of step (e) functions as the first set of the subsequent step (a).

2. A method as claimed in claim 1, wherein the method further comprises, between steps (b) and (c), the step of:

(b*) deleting one or more members of said first set.

3. A method as claimed in claim 2, wherein step (b*) comprises removing all members of the first set which do not begin with the selected first n elements of step (b).

4. A method as claimed in claim 1, wherein step (e) is conducted in a manner such as to maintain a predetermined number of members in the first set for each iteration.

5. A method as claimed in claim 1, wherein each element of the approximation sequence has m possible values, m being an integer greater than 1, and step (c) comprises, for each

member of the first set, forming corresponding m^n descendent partial sequences as members of the second set by appending each possible value/combination to and removing the first n elements of the member.

6. A method as claimed in claim 1, wherein each element of the approximation sequence has m possible values, m being as integer greater than 1, and step (c) comprises, for each member of the first set, forming less than m^n corresponding descendent partial sequences as members of the second set by appending a limited number of possible value/combinations to and removing the first n elements of the member.

7. A method as claimed claim 1, wherein step (d) comprises one or more of a group comprising low pass filtering, finite impulse response filtering, and recursive filtering each candidate partial sequence of the first set.

8. A method as claimed in claim 1, wherein step (d) comprises giving highest precedence to members of the first set which begin with an element having a same sign as the next sampling point.

9. A method as claimed in claim 1, wherein the method further comprises the step of sampling a waveform signal to obtain the series of sample values.

10. A method as claimed in claim 1, wherein step (d) comprises applying the fitness filtering process to the members of the second set such as to rank them according to fitness, when appended to the previous output elements, for approximating the series of sample values from the first sample value up to and including the next sample value to be approximated.

11. A method as claimed in claim 1, wherein output elements are output in the form of single-bit or multi-bit samples.

12. A system for producing a sequence (an "approximation sequence") approximating a series of sample values, the system comprising:

a processing unit arranged, in use, to:

(a) determine a first set having candidate partial sequences as members, each member comprising a plurality of elements;

(b) select the first n elements of one of the members of the first set as a next output element for said approximation sequence, n being a positive integer;

(c) form a second set having descendent candidate partial sequences as members from said first set;

(d) apply a fitness filtering process to said second set to rank its members according to fitness for representing at least a corresponding portion of the series of input samples;

(e) select at least some of the members of the second set to form a third set;

a control unit arranged, in use, such that the processing unit repeats steps (a) to (e), wherein the third set of step (e) functions as the first set of the subsequent step (a); and

an output unit arranged, in use, to output the selected at least one output element during each iteration, whereby the approximation sequence is produced.

13. A system as claimed in claim 12, wherein the processing unit is further arranged, in use, to carry out, between steps (b) and (c), the step of:

(b*) deleting one or more members of said first set.

14. A system as claimed in claim 13, wherein step (b*) comprises removing all members of the first set which do not begin with the selected first n elements of step (b).

15. A system as claimed in claim 12, wherein the processing unit is arranged, in use, to conduct step (e) in a manner such as to maintain a predetermined number of members in the first set for each iteration.

16. A system as claimed in claim 12, wherein each element of the approximation sequence has m possible values, me being an integer greater than 1, and step (c)

comprises, for each member of the first set, forming corresponding m^n descendent partial sequences as members of the second set by appending each possible value/combination to and removing the first n elements of the member.

17. A system as claimed in claim 12, wherein each element of the approximation sequence has m possible values, m being an integer greater than 1, and step (c) comprises, for each member of the first set, forming less than m^n corresponding descendent partial sequences as members of the second set by appending a limited number of possible values/combinations to and removing the first n elements of the member.

18. A system as claimed in claim 12, wherein step (d) comprises one or more of a group comprising low pass filtering, finite impulse response filtering, and recursive filtering each candidate partial sequence of the first set.

19. A system as claimed in claim 12, wherein step (d) comprises giving highest precedence to members of the first set which begin with an element having a same sign as the next sampling point.

20. A system as claimed in claim 12, wherein the system further comprises a sampling unit for sampling a waveform signal to obtain the series of sample values.

21. A system as claimed in claim 12, wherein step (d) comprises applying the fitness filtering process to the members of the second set such as to rank them according to fitness for approximating the series of sample values from the first sample value up to and including the next sample value to be approximated.

22. A system as claimed in claim 12, wherein the output unit is arranged, in use, such that the output elements are output in the form of single-bit or multi-bit samples.

23. A method of producing an approximation sequence to a series of sample values, substantially as herein described with reference to the accompanying drawings.

24. A system for producing an approximation sequence to a series of sample values, substantially as herein described with reference to the accompanying drawings.